ENERGY CENTER
OF WISCONSIN

October 7, 2004

TO: Stakeholders in the Energy Efficiency and Renewable Energy Potential Study

FROM: Susan Stratton

RE: Markets and program areas for inclusion in the Energy Efficiency and Renewable Energy Potential study

As you may know, the Energy Center is currently in the planning stage for a study of the potential for gas and electric energy efficiency and customer-sited renewable energy in Wisconsin. I am writing to solicit your (and your colleagues') feedback (by October 18th) on a preliminary list of markets and program areas to include in this study.

The study will focus on achievable potential over the next five years. It will also be organized around specific markets or program areas where program intervention can be expected to have the most potential impacts in this time frame. We have budgeted the study to provide detailed assessments of 36 markets and program areas (additional markets or program areas could be added at a later date if the Advisory Group determines it is appropriate).

We are seeking feedback from interested stakeholders about which 36 markets and program areas are most important to include in the study. Below is our preliminary list of markets and program areas for inclusion in the study (also attached is a more complete list from which our 36 was selected).

If you feel that this list excludes an area with significant achievable potential, please let us know by October 18th. Such an area could be either an existing market for a good or service where a program might stimulate the adoption of higher efficiency options ("incremental" or "new construction" markets), or a program approach that will stimulate an improvement in energy efficiency (or the adoption of a renewable energy technology) outside of existing markets ("retrofit" markets). To be most persuasive, you should describe how the market or program area you propose offers more achievable potential than other areas already on our list.

Return your comments to Sherry Benzmiller at the Energy Center, sbenzmiller@ecw.org. If you have questions about these markets, you may contact Energy Center staff directly:

Residential: Scott Pigg, spigg@ecw.org
Commercial, industrial, agriculture: Kevin Grabner, kgrabner@ecw.org
Renewables: Ingrid Kelley, ikelley@ecw.org

Feel free to pass this solicitation on to others who might be interested in providing feedback to us. We will incorporate this feedback into an overall study design that we will submit the project Advisory Group on October 22.

Achievable Potential Study – Preliminary 36 Included Markets

CLASS	CUSTOMER SECTOR	MARKET/ OPPORTUNITY TYPE	MARKET CLASS	MARKET
Energy Efficiency	Comm & Ind	New construction	new construction	component efficiency improvements (excl industrial process)
Energy Efficiency	Comm & Ind	New construction	new construction	whole-building integrated design (excl. industrial process)
Energy Efficiency	Comm & Ind	Incremental	equipment purchase	packaged HVAC end of service replacement
Energy Efficiency	Comm & Ind	Incremental	equipment purchase	chiller end of service replacement
Energy Efficiency	Comm & Ind	Incremental	equipment purchase	boiler end of service replacement
Energy Efficiency	Commercial	Incremental	remodeling/renovation	alterations of commercial spaces
Energy Efficiency	Commercial	Retrofit	system retrofits	Lighting in large commercial, education, and government
Energy Efficiency	Commercial	Retrofit	system retrofits	HVAC in large commercial, education, and government
Energy Efficiency	Commercial	Retrofit	system retrofits	Supermarket and packaged refrigeration
Energy Efficiency	Comm & Ind	Retrofit	facility retrofit	Small facility retrofit
Energy Efficiency	Industrial	Retrofit	system retrofits	compressed air
Energy Efficiency	Industrial	Retrofit	system retrofits	fans and pumps
Energy Efficiency	Industrial	Retrofit	system retrofits	industrial manufacturing processes
Energy Efficiency	Industrial	Retrofit	facility retrofit	Large facility plantwide retrofit
Energy Efficiency	Agricultural	Retrofit	facility retrofit	dairy farm, livestock, and crop
Energy Efficiency	Residential	Incremental	Electronic equipment purchase	homeowner/renter electronic appliance purchase (TV, computer, etc.)
Energy Efficiency	Residential	Incremental	Lighting purchase	homeowner/renter retail lighting purchase
Energy Efficiency	Residential	Incremental	Lighting purchase	rental building common-area lighting purchase
Energy Efficiency	Residential	Incremental	Mechanical system purchase	homeowner furnace replacement
Energy Efficiency	Residential	Incremental	Mechanical system purchase	homeowner AC purchase
Energy Efficiency	Residential	Incremental	Mechanical system purchase	rental htg. sys. replacement
Energy Efficiency	Residential	Incremental	Mechanical system purchase	homeowner/renter retail room AC purchase
Energy Efficiency	Residential	New construction	New construction	single-family, owner occupied
Energy Efficiency	Residential	Incremental	remodeling/renovation	homeowner remodeling
Energy Efficiency	Residential	Incremental	remodeling/renovation	1-4 unit rental remodeling
Energy Efficiency	Residential	Incremental	remodeling/renovation	5+ unit rental rennovation
Energy Efficiency	Residential	Incremental	White goods purchase	homeowner refrigerator purchase
Energy Efficiency	Residential	Incremental	White goods purchase	1-4 unit rental refrigerator purchase
Energy Efficiency	Residential	Incremental	White goods purchase	homeowner washer purchase
Energy Efficiency	Residential	Incremental	White goods purchase	5+ rental refrigerator purchase
Renewables	Residential	Retrofit	Solar PV	Individual home systems
Renewables	Residential	Retrofit	Solar thermal DHW	Individual home systems
Renewables	Commercial	Retrofit	Solar thermal DHW	For use by businesses and institutions that use large volumes of hot water such as car washes, hotels, hospitals, athletic facilities
Renewables	Agricultural	Retrofit	Wind	Site dedicated wind generation for farms
Renewables	Agricultural	Retrofit	Methane recovery	Farm-based anaerobic digesters
Renewables	Commercial	Retrofit	Wood and wood waste	Fuel supplies near plant

Achievable Potential Study – Preliminary List of Markets not Modeled

CLASS	CUSTOMER SECTOR	MARKET/ OPPORTUNITY TYPE	MARKET CLASS	MARKET
Energy Efficiency	Commercial	Incremental	equipment purchase	furnace end of service replacement
Energy Efficiency	Commercial	Incremental	equipment purchase	Lighting: end of service replacement
Energy Efficiency	Commercial	Incremental	service purchase	HVAC system maintenance enhanced for energy efficiency
Energy Efficiency	Commercial	Retrofit	system retrofits	Large commercial - other, excluding lighting, HVAC, refrigeration
Energy Efficiency	Commercial	Retrofit	facility retrofit	low cost operations improvements
Energy Efficiency	Commercial	Retrofit	fuel switch	Commercial water heating
Energy Efficiency	Commercial	Retrofit	fuel switch	Commercial space heat
Energy Efficiency	Commercial	Retrofit	fuel switch	Commercial cooling
Energy Efficiency	Commercial	Retrofit	load management	Commercial direct load control
Energy Efficiency	Commercial	Retrofit	load management	Large commercial interruptible pricing
Energy Efficiency	Commercial	Retrofit	load management	Standby power generation pricing
Energy Efficiency	Commercial	Retrofit	load management	Commercial time of use pricing with customer load shaping
Energy Efficiency	Commercial	Retrofit	load management	Commercial thermal energy storage
Energy Efficiency	Industrial	New construction	new construction	process equipment
Energy Efficiency	Industrial	Incremental	equipment purchase	Motor: end of service replacement
Energy Efficiency	Industrial	Incremental	equipment purchase	Lighting: end of service replacement
Energy Efficiency	Industrial	Retrofit	system retrofits	motor-driven systems, except fans, pumps, and compressed air
Energy Efficiency	Industrial	Retrofit	system retrofits	Steam system
Energy Efficiency	Industrial	Retrofit	system retrofits	Process heat
Energy Efficiency	Industrial	Retrofit	system retrofits	Refrigeration
Energy Efficiency	Industrial	Retrofit	system retrofits	lighting
Energy Efficiency	Industrial	Retrofit	system retrofits	HVAC
Energy Efficiency	Industrial	Retrofit	facility retrofit	Low cost operations improvements
Energy Efficiency	Industrial	Retrofit	fuel switch	Industrial process heating
Energy Efficiency	Industrial	Retrofit	load management	industrial interruptible pricing
Energy Efficiency	Industrial	Retrofit	load management	Standby power generation pricing
Energy Efficiency	Industrial	Retrofit	load management	industrial time of use pricing with customer load shaping
Energy Efficiency	Industrial	Retrofit	load management	industrial thermal energy storage
Energy Efficiency	Agricultural	Retrofit	system retrofits	dairy farm refrigeration equipment
Energy Efficiency	Agricultural	Retrofit	system retrofits	pumps
Energy Efficiency	Agricultural	Retrofit	system retrofits	fans
Energy Efficiency	Agricultural	Retrofit	system retrofits	lighting
Energy Efficiency	Residential	Incremental	Mechanical system purchase	homeowner DHW replacement
Energy Efficiency	Residential	Incremental	Mechanical system purchase	rental DHW replacement
Energy Efficiency	Residential	Incremental	Mechanical system purchase	homeowner/renter retail dehumidifier purchase
Energy Efficiency	Residential	Incremental	White goods purchase	homeowner secondary refrigerator removal
Energy Efficiency	Residential	Incremental	White goods purchase	rental common laundry room equipment purchase
Energy Efficiency	Residential	New construction	New construction	1-4 unit rental
Energy Efficiency	Residential	New construction	New construction	5+ unit rental
Energy Efficiency	Residential	Retrofit	Shell upgrade	homeowner shell improvements (insulation, air sealing)
Energy Efficiency	Residential	Retrofit	Shell upgrade	1-4 unit rental shell improvements (insulation, air sealing)
Energy Efficiency	Residential	Retrofit	Shell upgrade	5+ unit rental shell improvements (insulation, air sealing)
Energy Efficiency	Residential	Retrofit	lighting upgrade	upgrade building lighting
Energy Efficiency	Residential	Retrofit	Hot water savers	measures to reduce hot water energy consumption (showerhead, blanket, etc.)
Energy Efficiency	Residential	Retrofit	fuel switch	Residential water heating
Energy Efficiency	Residential	Retrofit	fuel switch	Residential space heat
Energy Efficiency	Residential	Retrofit	load management	Residential direct load control
Energy Efficiency	Residential	Retrofit	load management	Residential thermal energy storage
Renewables	Agricultural	Retrofit	Wind	Commercial wind developers; wind cooperatives
Renewables	Agricultural	Retrofit	Solar PV	Small remote systems for water pumping, fence recharging, lighting
Renewables	Agricultural	Retrofit	Solar Thermal, water	Greenhouse heating

Achievable Potential Study – Preliminary List of Markets not Modeled

CLASS	CUSTOMER SECTOR	MARKET/ OPPORTUNITY TYPE	MARKET CLASS	MARKET
Renewables	Agricultural	Retrofit	Solar thermal, air	Heating for livestock barns, storage buildings
Renewables	Agricultural	Retrofit	Hydropower	micro-hydro technologies
Renewables	Commercial	Retrofit	Solar thermal, air	For use by businesses or institutions that need to heat warehouses, equipment storage, garages and other minimally occupied large spaces
Renewables	Commercial	New construction	Solar PV	Building integrated PV
Renewables	Govt/Institutional	New construction	Geothermal	Ground and water source heat pumps for school campuses
Renewables	Govt/Institutional	Retrofit	Methane recovery	Municipal sewage plants
Renewables	Govt/Institutional	Retrofit	Methane recovery	Landfill gas
Renewables	Govt/Institutional	Retrofit	Solar PV	Educational demonstrations for schools
Renewables	Govt/Institutional	Retrofit	Solar PV	Remote systems for lighting; highway signs; radio transmitters
Renewables	Govt/Institutional	Retrofit	Solid waste	Municipal solid waste to energy
Renewables	Industrial	Retrofit	Biomass	Biodiesel and other biofuels for electrical generation and industrial process heat
Renewables	Industrial	Retrofit	Hydropower	Paper mill hydro upgrade and expansion at existing dams
Renewables	Industrial	Retrofit	Biomass	Pulp mill black liquor gasification
Renewables	Industrial	Retrofit	Biomass	Small scale biomass gasification combined heat and power
Renewables	Industrial	Retrofit	Biomass	Biomass combustion and co-firing
Renewables	Residential	New construction	Solar PV	Zero energy homes
Renewables	Residential	New construction	Solar thermal DHW	Zero energy homes
Renewables	Residential	New construction	Geothermal	Ground source heat pumps for individual homes
Renewables	Residential	New construction	Passive solar design	Solar orientation and energy efficiency design for homes to decrease energy needed for heating and lighting
Renewables	Residential	Retrofit	Wood/biomass space heating	Individual home stoves/fireplaces using wood or other biomass
Renewables	Residential	Retrofit	Solar thermal space heat	Solar thermal space htg. Systems for homes
Renewables	Residential	Retrofit	Hydropower	micro-hydro technologies for rural residences